12

LEVEL II

RESEARCH PRODUCT 80-24c

SUPPLEMENTAL GUIDE: SOURCES OF INFORMATION FOR ON-LINE IMPLEMENTATION FOR ISD 1.5 SELECT INSTRUCTIONAL SETTING

BASIC SKILLS INSTRUCTIONAL SYSTEMS TECHNICAL AREA

DECEMBER 1979

U.S. ARMY RESEARCH INSTITUTE for the BEHAVIORAL and SOCIAL SCIENCES

U. S. ARMY RESEARCH INSTITUTE FOR THE BEHAVIORAL AND SOCIAL SCIENCES

A Field Operating Agency under the Jurisdiction of the Deputy Chief of Staff for Personnel

JOSEPH ZEIDNER
Technical Director

FRANKLIN A. HART
Colonel, US Army
Commander

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19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

ISD
Instructional Systems Development
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Job Aids
Programming Design Guide
Programming Design Language

20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The purpose of the research was to develop and evaluate a guide for the computer implementation of a manual Job Aid previously developed (ARI Research Products 80-13 and 80-14). The manual Job Aid of the prior research provided "how to do it" guidance for selected activities identified in the Instructional Systems Development Model. The present document provides a supplementary manual for instructional developers who will use the Job Aid for Selecting Instructional Setting in the computer mode. Companion documents (ARI Research Products 80-24a and 80-24b) provide

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20. the developmental history of the Programming Design Guide, which is intended to enable computer programmers to implement a manual Job Aid on any computer system, and the actual guide.

FOREWORD

The Computer-Based Instructional Systems Team of the US Army Research Institute for the Behavioral and Social Sciences (ARI) performs research and development in the area of educational technology that applies to military training. Of interest are methods for training individuals to develop and utilize instructional courseware in reasonable time, at acceptable cost.

This Research Product is one of a series which have been designed to support the implementation of the Instructonal Systems Development Model (ISD, TRADOC Pamphlet 350-30). The ISD Model is a step-by-step procedure for the analysis, design, development, implementation, and control of military course materials. A previous effort produced manual Job Aids which are paper and pencil documents designed to provide "how to do it" guidance for the ISD Model. This document is part of a series of three developed to support the delivery of the manual Job Aids by computer. To accomplish this research, ARI's resources were augmented by contract DAHC19-78-C-0100 with the Human Resources Research Organization (HumRRO).

The contributions of personnel from ARI's Manpower and Educational Systems's Technical Area as well as those of Mr. Charles F. Marshall and Mr. Joseph P. Severo, Research Facilities Support Group are acknowledged. Mr. Antonio J. Alameda, HumRRO also contributed to this research effort.

The entire research project is responsive to the requirements of Army Project 2Q263743A794, FY80 Work Program.

JOSEPH ZEIDNER
Technical Director

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SUPPLEMENTAL GUIDE: SOURCES OF INFORMATION FOR ON-LINE IMPLEMENTATION OF ISD I.5 SELECT INSTRUCTIONAL SETTING

BRIEF

Requirement:

The purpose was to develop a language to translate an existing paper and pencil Job Aid onto a computerized delivery system. The Job Aid is one of a series developed previously to support users of the Instructional Systems Development Model (ISD).

Procedure:

A Programming Design Language (PDL) was created to describe the computer functions (e.g., computer/user interactions, storage/retrieval of data, program branching, program management, and calculations) required by the Job Aids (ARI Research Products 80-13 through 80-18). The PDL was designed to communicate to the computer programmer in a language independent fashion so that the on-line or computer version of the Job Aid could be delivered by any computer. This document was designed to support the user of the computer-based Job Aid.

Utilization:

The Programming Design Guide may be used by computer programmers who are tasked with programming the manual Job Aids. This supplemental guide is intended for use by Instructional Developers who may use the on-line Job Aid.

TABLE OF CONTENTS

Chapter I

INTRODUCTION

Job aids are being developed for the U.S. Army Research Institute for the Behavioral and Social Sciences under contract DAHC19-78-C-0010. The job aids are intended to be stand-alone, step-by-step procedural guides which are equally useful to individuals at all experience levels of the instructional systems development process.

There are thirteen job aids presently available. They are:

- Job Aid for Selecting Tasks for Training
- Job Aid for Conducting Task Analysis
- Job Aid for Analyzing Existing Courses
- Job Aid for Selecting Instructional Setting
- Job Aid for Developing Objectives
- Job Aid for Developing Tests
- Job Aid for Describing Entry Behavior
- Job Aid for Determining Sequence and Structure
- Job Aid for Specifying Learning Events and Activities
- Job Aid for Specifying Instructional Management Plan and Delivery System
- Job Aid for Review and Selection of Existing Materials
- Job Aid for Developing Instruction
- Job Aid for Validating Instruction

In addition to printed versions of the above job aids, the Job Aid for Selecting Instructional Setting can be made available in a computer version. A Programming Design Guide[1] is available for use by computer programmers which provides all of the guidance necessary for them to implement the job aid on their computer system. Instructional development personnel would then use the on-line version of the aid to assist in the selection of instructional setting for each critical task. This document provides supplemental guidance for the user of the on-line job aid. It is not intended to be a stand-alone publication.

> THIS SUPPLEMENTAL GUIDE IS NOT INTENDED TO BE A STAND-ALONE DOCUMENT. IT IS INTENDED TO PROVIDE ONLY SUPPLEMENTAL INFORMATION THAT MAY BE USEFUL TO INSTRUCTIONAL DEVELOPMENT PERSONNEL WHO USE THE ON-LINE VERSION OF THE JOB AID SELECT INSTRUCTIONAL SETTING.

[1] Schulz, R.E., Underhill, W.G., Hargan, C.S. *Programming Design Guide for Computer Implementation of Job Aid for Selecting Instructional Settings*, (Research Product 80-24b). Alexandria, VA: US Army Research Institute, August 1980.

Chapter II

SOURCES OF INFORMATION

OVERVIEW OF THE INSTRUCTIONAL SETTINGS JOB AID

- **Objective**

1. Given a list of tasks selected for training within a single skill level, select the most appropriate instructional setting for training each task to the *Soldier's Manual Standard*. (Qualification Training)

2. Record the basis for each instructional setting selection.

- **Purpose**

The purpose of this aid is to help you choose instructional settings (training locations) for tasks selected for training within each skill level. Due to advancements in instructional technology it is often more cost-beneficial and efficient to train tasks in a non-institutional (extension) setting. This aid is designed to help you identify as many tasks as possible for which extension training is appropriate.

- **Product**

This job aid will result in a listing of all critical tasks in which each task is assigned for training to one of the following instructional settings:

a. Institution (Resident school training)
b. Supervised On-the-Job Training (SOJT)
c. Self-study

This output will be especially useful in the preparation of the Commander's Manual.

- **Overview of Major Steps in Selecting Instructional Setting**

Step 1. Tasks selected for training are categorized by skill level and duty position.

Step 2. Task performance data is obtained and recorded for each task. That is:

a. In which duty position is the task performed?
b. What percentage of soldiers perform the task?

Step 3. Initial assignment of the task to one of three instructional settings (institution, supervised on-the-job training, or self-study) is made based on the answers to the following 14 questions:

(1) Is task a common skill level task?

(2) Is task performed by a high percentage of soldiers?

(3) Is task performed in a similar manner in various duty positions and units?

(4) Is proficiency in task performance retained over time (that is, not easily forgotten)?

(5) Does task require considerable theoretical knowledge?

(6) Must the task be performed immediately on entry to the job?

(7) Is the task a prerequisite for learning to perform other school trained tasks?

(8) Is training equipment and/or facilities only available at the school?

(9) Is the equipment required for individual training of the task in the unit available at most units?

(10) Are personnel with the necessary expertise to conduct training of the task available at most units?

(11) Do operational requirements at most units allow sufficient time for the soldier to receive training in the unit?

(12) Can the task be learned with very little supervision?

(13) Does the soldier's schedule allow sufficient time for independent study?

(14) Can everything required for training (which is not already available in the unit) be included in the exportable training package at a cost competitive with school (institution) training?

Step 4. Administrative review and final selection of instructional setting.

In Step 3, tasks are assigned initially to one of the three instructional settings. In this step each task is reviewed to determine if the initial assignment is still the best instructional setting on the basis of expert opinion. In the review of each task, questions of the type shown on the following displays are asked:

(1) Have so many tasks been assigned to SOJT or Self-Study that there is not enough time to train all the tasks before they must be performed?

(2) Have so many tasks been assigned to SOJT that units can't handle the load?

(3) Have so few tasks been assigned to a particular setting that administrative costs outweigh the advantages of training so few tasks in this instructional setting?

(4) Would resource and time constraints in the development of new training programs delay the onset of critically needed training?

(5) Are there any other reasons why the initially selected instructional setting should be changed?

After reviewing each task and asking questions similar to those just shown, any indicated changes in instructional setting is made. The rationale for each change is to be carefully documented.

The task listing with the final selections of instruction settings is submitted to the supervisor for review and revision.

DESCRIPTION OF INSTRUCTIONAL SETTINGS

Institution (INST)	Supervised On-The-Job Training (SOJT)	Self-Study
Training conducted at TRADOC resident schools and includes: OSUT - One Station Unit Training PNCOC - Primary Noncommissioned Officer Course BNCOC - Basic Noncommissioned Officer Course ANCOC - Advanced Noncommissioned Officer Course	Training conducted at the soldier's unit	Training administered during individuals own time, usually at the soldier's unit and includes: Self-teaching exportable packages (STEP) Training Extension Courses Job Performance Aids Study Guides Correspondence Courses Films, tapes, etc.
Training always conducted under supervision of qualified instructors	Training supervised by best qualified NCOs in unit	Little supervision required

ADVANTAGES AND DISADVANTAGES OF THREE INSTRUCTIONAL SETTINGS

Instructional Setting	Advantages	Disadvantages
INSTITUTION	Usually best setting for training common skill level tasks or tasks that are performed by large percentage of soldiers in the MOS/skill level Sophisticated training resource and expertise available	Lack of real world environment High cost of soldier's housing and travel Time is spent away from job assignment
SUPERVISED ON-THE-JOB TRAINING	Effective for training tasks that can be learned faster or better with hands-on experience Soldier contributes to unit's mission while learning	May tie up unit's equipment and thus equipment may not be available for operational use May overburden supervisors Reduces time available in unit for operational requirements
SELF-STUDY	Effective for training tasks which can be learned without an instructor or where little supervision is required Can be accomplished at trainee's convenience	If study occurs during normal duty hours, this type of training may reduce time available in unit for operational requirements May require soldier to devote considerable off-duty time to study

SOURCES OF INFORMATION FOR DETERMINING PERCENTAGE OF SOLDIERS IN THE SKILL LEVEL WHO PERFORM EACH TASK

CODAP Group Summary

CODAP data, when available, are excellent for determining the percent of soldiers within the skill level who perform each task. However, it is likely that not all tasks represented in the skill level will be represented on the CODAP Report. Consequently, even when a CODAP Report is available, it will probably be necessary to supplement the data from the Report with data from other sources.

Field Survey

Field Survey data are excellent for determining the percent of soldiers who perform each task. However, a field survey should only be conducted when CODAP data are not available (or badly out of date) and when there is sufficient time to conduct the survey. Guidance for conducting a field survey can be found in Chapter III of this guide.

Panel of Recent Job Incumbents

This represents a fair source of information for determining the percent of soldiers within the skill level who perform each task. See Chapter IV for guidance in establishing and using a panel of recent job incumbents.

Panel of Subject Matter Experts

Use this source only if none of the above sources are available. See Chapter IV for guidance in establishing and using this type of panel.

Your Own Judgment

As a last resort, you may have to use your own judgment.

SOURCES OF INFORMATION FOR DETERMINING IF TRAINING REQUIREMENTS FOR THE TASK ARE ESSENTIALLY THE SAME REGARDLESS OF THE MISSION, EQUIPMENT ALLOCATION, GEOGRAPHICAL LOCATION, ETC., OF UNITS IN WHICH THE JOB INCUMBENT IS ASSIGNED

— Job performance measures or task performance descriptions developed in ISD I.3 Construct Job Performance Measures is an excellent source of equipment used in task performance. This will assist in determining whether equipment differences between units will have an effect on training requirements.

- TOE/MTOE and TDA is another excellent source of information concerning equipment allocation in various units.

- Training Manuals and supply bulletins used in conjunction with TOE should be considered as a good source of information.

- Panel of recent job incumbents can provide good information for answering question 3. See Chapter IV for guidance in establishing and using this particular panel.

- Panel of subject matter experts. This also is a good source. See Chapter IV for guidance in establishing and using a panel of subject matter experts.

- Your own judgment. Use only as a last resort or in conjunction with other sources.

EXAMPLES OF FACTORS TO CONSIDER IN DETERMINING IF A TASK TAUGHT IN THE SCHOOL (INSTITUTION) WILL STILL BE REMEMBERED BY THE TIME THE SOLDIER HAS TO PERFORM THE TASK ON THE JOB

- Tasks for which the soldier has had previous civilian or military experience will usually be easily remembered (that is, driving a vehicle).

- Tasks which the soldier considers important to remember will be better learned and more easily recalled.

- Some tasks require frequent opportunities for practice in order to retain task proficiency.

- In general, motor tasks (physical activities) are more easily remembered than mental tasks.

- Tasks which involve short regular procedures are more easily remembered than those for which there is no clear cut procedure to follow.

SOURCES OF INFORMATION FOR DETERMINING IF THERE IS A CONSIDERABLE AMOUNT OF THEORY TO BE TAUGHT WITH THE TASK UNDER CONSIDERATION

- Output from ISD I.3 Construct Job Performance Measures or ISD I.2 Conducting Task Analysis provide a good source of information. Examine task descriptions to determine how the task is performed. This should provide an excellent insight into the amount of theoretical content that will be required for training the task.

- Training Manuals are an excellent source of information.

- Field survey of Job Supervisors is an excellent source if time for survey is available. See Chapter III for guidance in conducting a field survey.

- Panel of Recent Job Supervisors. Fair Source. See Chapter IV for guidance in establishing panel.

SOURCES OF INFORMATION FOR DETERMINING IF THE TASK MUST BE PERFORMED IMMEDIATELY ON ENTRY TO THE JOB

- Field Survey of Job Supervisors and/or Incumbents. Excellent source when time for survey is available and if information is not available through CODAP. See Chapter III for guidance in conducting the survey.

- Panel of Recent Job Incumbents. Good Source. See Chapter IV for guidance in selecting panel.

- Your own judgment. Use only if all other sources are unavailable.

SOURCES OF INFORMATION FOR DETERMINING IF THE TASK IS A PREREQUISITE FOR LEARNING AND/OR PERFORMING OTHER SCHOOL TRAINED TASKS

- Check Training Manuals, task description etc., to determine training equipment requirements. Survey field supervisors to determine if training equipment is available in field units.

- Panel of Recent Job Supervisors. Use in conjunction with Training Manuals, Job Performance Measures, etc. See Chapter IV for guidance in selecting panel.

SOURCES OF INFORMATION FOR DETERMINING IF EQUIPMENT REQUIRED FOR INDIVIDUAL TRAINING OF THE TASK IN THE UNIT IS AVAILABLE AT MOST UNITS

- Field Survey of Supervisors is an excellent source of information if time for survey is available. See Chapter IV for guidance in conducting a survey.

- Panel of Recent Job Supervisors is a good source of information. See Chapter IV for guidance in selecting panel.

- Training Manuals to determine equipment requirement followed by review of TOE/MTOE or TDA for appropriate units. Good source of information.

SOURCES OF INFORMATION FOR DETERMINING IF PERSONNEL WITH THE NECESSARY EXPERTISE ARE AVAILABLE AT MOST UNITS TO CONDUCT THE TRAINING FOR THE TASK

- Field Survey of Supervisors is an excellent source of information if time for survey is available. See Chapter III for guidance in conducting a field survey.

- Panel of Recent Job Supervisors. Good Source. See Chapter IV for guidance in convening the panel.

- Your own judgment. Use only if other sources are not available.

SOURCES OF INFORMATION FOR DETERMINING IF OPERATIONAL REQUIREMENTS AT MOST UNITS ALLOW SUFFICIENT TIME FOR THE SOLDIER TO BE TRAINED IN THE UNIT

- Field Survey of Supervisors is an excellent source of this information. See Chapter III for guidance in conducting a field survey.

- Panel of Recent Job Supervisors. Good source. See Chapter IV for guidance in selecting panel.

SOURCES OF INFORMATION FOR DETERMINING IF TASK CAN BE LEARNED WITH VERY LITTLE SUPERVISION

- Output from ISD I.2 Select Task/Functions. Task learning difficulty should have been established on a rating scale of 1 to 7 and will therefore be an excellent indication of the amount of supervision required.

- Field Survey of Job Supervisors. Excellent source if time for survey is available. See Chapter III for guidance in conducting field survey.

- Panel of Recent Job Supervisors. Good source of information. See Chapter IV for guidance in selecting panel.

- Your own judgment. Use only if other sources are not available.

SOURCES OF INFORMATION FOR DETERMINING IF THE SOLDIER'S SCHEDULE ALLOWS SUFFICIENT TIME FOR INDEPENDENT STUDY

- Field Survey of Job Incumbents and Job Supervisors. Excellent source especially when a comparison is made between the two sources. See Chapter III for guidance in conducting a field survey.

- Panel of Recent Job Incumbents and Recent Job Supervisors. Good source. See Chapter IV for guidance in selecting panels.

- Your own judgment. Use only if other sources are not available.

SOURCES OF INFORMATION FOR DETERMINING IF EVERYTHING REQUIRED FOR TRAINING (WHICH IS NOT ALREADY AVAILABLE IN THE FIELD) CAN BE INCLUDED IN A TRAINING PACKAGE AND IS IT INEXPENSIVELY EXPORTABLE

- Check with Course Development Personnel
- Panel of Subject Matter Experts. Fair source. See Chapter IV for guidance in selecting panel.
- Your own judgment. Use only if other sources are not available.

FACTORS TO CONSIDER WHEN RE-EXAMINING THE TASKS INITIALLY ASSIGNED TO AN INSTITUTIONAL INSTRUCTIONAL SETTING

- For each task initially assigned to the Institution consider any reason why the task should NOT be trained in an institutional setting. Following are examples of questions you might want to ask as you review each task:
  - Do feedback from the field or SQT results indicate that an Institutional setting has proven ineffective for any of these tasks?
  - Are appropriate cues or stimuli not available in the school for any task?
  - Are skilled instructors available for teaching the task in the school?
  - Is time and money available for training the task in the school?
  - Are there any job factors unique to this MOS which would cause you to change this instructional setting?
  - Will new equipment/simulators soon to be available cause you to change this setting?

    You may have other reasons why the task should not be taught at the institution. Consider each reason carefully.

FACTORS TO CONSIDER WHEN RE-EXAMINING THE TASKS INITIALLY ASSIGNED TO AN SOJT INSTRUCTIONAL SETTING

- For each task initially assigned to SOJT consider any reason why the task should NOT be trained in a SOJT setting. Following are examples of questions you might want to ask as you review each task.
  - Do feedback from the field or SQT results indicate that a SOJT setting has proven ineffective for any of these tasks?

- Is the environment too hazardous for training this task in the field? For example, would errors made during training in a field environment be critical to the student, to others, or to equipment?

- Will new equipment/simulators soon be available which would cause you to change the setting?

- Do "percentage performing" figures indicate that fewer soldiers are performing this task than should be? If so, does the percent which should be performing meet the criterion for high task performance and therefore consideration for Institutional training?

- Are there any job factors unique to this MOS which would cause you to change this instructional setting?

You may have other reasons why the task should not be taught by SOJT. Consider each reason carefully.

FACTORS TO CONSIDER WHEN RE-EXAMINING THE TASKS INITIALLY ASSIGNED TO A SELF-STUDY INSTRUCTIONAL SETTING

- For each task initially assigned to Self-Study consider any reason why the task should NOT be trained in a Self-Study setting. Following are examples of questions you might want to ask as you review each task:

  - Do feedback from the field or SQT results indicate that a Self-Study setting has proven ineffective for any of these tasks?

  - Will new equipment/simulators soon be available which would cause you to change the setting?

  - Do "percentage performing" figures indicate that fewer soldiers are performing this task than should be? If so, does the percent which should be performing meet the criterion for high task performance and therefore consideration for Institutional training?

  - Would the percent performing figure change radically during mobilization? Would the task then become a candidate for training in the Institution?

  - Are there any job factors unique to this MOS which would cause you to change this instructional setting?

  You may have other reasons why the task should not be taught by Self-Study. Consider each reason carefully.

Chapter III

CONDUCTING FIELD SURVEYS

WHAT IS A FORMAL FIELD SURVEY?

A formal field survey is similar to the type of questionnaire survey conducted by the Army Occupational Survey Program, only it is conducted by instructional development personnel within an Army service school.

The use of questionnaires permits the job analysis team to make limited contact with large numbers of personnel; thus large amounts of information can be collected at a relatively low cost. Questionnaires can be mailed to personnel who are asked to complete and return them, or they can be administered to groups of job incumbents and/or supervisors by local personnel who have the responsibility and authority to make sure all questionnaires are completed and returned.

WHEN SHOULD FORMAL FIELD SURVEYS BE USED?

Whenever time does not allow you to access information from the Army Occupational Survey Program, an alternate data collection method may be used. Formal field surveys are suggested as an alternate data source in the ISD Job Aids. Should you decide to conduct a formal field survey be sure to obtain permission from MILPERCEN in accordance with the guidelines in AR 600-46.

HOW IS A FIELD SURVEY QUESTIONNAIRE DESIGNED?

- **Types of Questionnaires**

There are two types of questionnaires, the closed form and the open form. We suggest using the closed form, which contains a list of possible items to be selected or blanks to be filled in with words or numbers. (In the open form questionnaire the respondent might be asked "list the tasks you now perform and rate the amount of time spent on each task." For an example of a closed form questionnaire, see pages 14 and 15. This form has several advantages over the other alternative, the open form. It is likely to take a minimum amount of time to fill out, thus increasing the chances that it will be completed and returned. The process of tabulating and summarizing responses is simpler and less time consuming than with an open form questionnaire. Machine tabulation and computer analysis of the completed forms are practical when a large number of questionnaires is used.

A properly designed closed form questionnaire is difficult to prepare. The designer must be sure to include all possible responses that he expects from any of the soldiers who will complete the questionnaire. The items must be constructed so that they clearly communicate to the user exactly what the designer is trying to ask. The

JOB INVENTORY (DUTY-TASK LIST)	AFSC 921X0/922X0	Page 7 of 44 Pages

1. Check tasks you perform now (✓).
2. Add any tasks you do now which are not listed.
3. In the "Time Spent" column, rate checked (✓) tasks on time spent in your present job.

Time Spent Scale

1 – VERY MUCH BELOW AVERAGE
2 – BELOW AVERAGE
3 – SLIGHTLY BELOW AVERAGE
4 – ABOUT AVERAGE
5 – SLIGHTLY ABOVE AVERAGE
6 – ABOVE AVERAGE
7 – VERY MUCH ABOVE AVERAGE

C. FITTING AND MAINTAINING LIFE RAFTS AND PRESERVERS		✓ CHECK IF DONE IN PRESENT JOB	TIME SPENT DOING THESE TASKS IN PRESENT JOB
1. Clean life preservers	42		
2. Clean life rafts	43		
3. Condemn non-operable life rafts or life preservers	44		
4. Fit life preservers	45		
5. Inspect life preservers	46		
6. Inspect life raft accessories	47		
7. Inspect life rafts	48		
8. Inspect or weight test carbon dioxide (CO_2) cylinders or cartridges	49		
9. Make entries on or review Life Preserver Data forms (AFTO Form 486)	50		
10. Make entries on or review Life Preserver Inspection Data Record forms (AFTO Form 336)	51		
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11. Make entries on or review Life Raft Inspection Record forms (AFTO Form 337)	52		
12. Make entries on or review User Certification Label forms (AFTO Form 27)	53		
13. Pack life preservers	54		
14. Pack life raft accessory containers	55		
15. Pack life rafts	56		
16. Perform functional tests of life preservers	57		
17. Perform functional tests of life rafts	58		
18. Perform inflation tests of life preservers	59		
19. Perform inflation tests of life rafts	60		
20. Perform minor repairs to life preservers such as patching rips, tears, or holes	61		
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JOB INVENTORY (DUTY-TASK LIST)	AFSC 921X0/922X0	Page 8 of 44 Pages

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3 - SLIGHTLY BELOW AVERAGE
4 - ABOUT AVERAGE
5 - SLIGHTLY ABOVE AVERAGE
6 - ABOVE AVERAGE
7 - VERY MUCH ABOVE AVERAGE

C. FITTING AND MAINTAINING LIFE RAFTS AND PRESERVERS (CONTINUED)		CHECK IF DONE IN PRESENT JOB (✓)	TIME SPENT DOING THESE TASKS IN PRESENT JOB
21. Refill CO_2 cylinders	62		
22. Send life raft compressed gas cylinders to other agencies for test, refill, or inspection	63		
23. Store life rafts or life preservers	64		
IF A TASK THAT YOU PERFORM IS NOT LISTED ANYWHERE IN THE ENTIRE LIST, WRITE IT IN THE BLANK SPACES BELOW.			

greatest single problem with research methods is improperly worded questionnaires, as they produce faulty data. If you intend to design your own questionnaires we suggest consulting the following guides:

> Morsh, J.E. and Archer, W.B. *Procedural guide for conducting occupational surveys in the United States Air Force* (PRL-TR-67-11). Lackland Air Force Base, Texas: Personnel Research Laboratory, Aerospace Medical Division, Air Force Systems Command, September 1967.
>
> Jacobs, T.O. *Developing questionnaire items: how to do it well.* Human Resources Research Organization (HumRRO), 300 North Washington Street, Alexandria, Virginia 22314.

WHAT SHOULD BE INCLUDED ON THE QUESTIONNAIRE?

The details of the forms you use will be determined by:

1. how you will tabulate and summarize the results, and
2. what information you wish to collect.

How you will tabulate and summarize results will be determined by whether you have available a computer and other automated data handling equipment and by the number of people surveyed. **To determine what information you wish to collect, you should consider the total data requirement for the training development process. These data requirements should be predetermined in the job analysis plan so that as much information as possible can be obtained in a single questionnaire survey effort.**

One note of caution about the design of your questionnaire is that you should keep the questionnaire as short as practical. In general, the forms should be designed so they can be completed in two hours or less. One way you can save time on a complex task inventory is to list all tasks under their appropriate duty position title. This will permit the soldier to rapidly scan groups of tasks that she/he does not perform and then proceed to the next duty position.

WHAT TYPE OF INSTRUCTIONS FOR COMPLETING AND ADMINISTERING THE QUESTIONNAIRES SHOULD BE PREPARED?

After the formal field survey questionnaires have been written, the instructions for completing and administering the questionnaires should be prepared. These instructions should include:

- For the user
  - an introduction explaining the purpose and importance of participating in the field survey.
  - general instructions explaining how the questionnaire is to be completed.
- For the project officer (When questionnaire is not self-administered)
  - general instructions regarding his/her responsibilities.
  - specific instructions for administering the questionnaire in a controlled environment.

For examples of these types of instructions, see pages 17-23.

TO: USER OF QUESTIONNAIRE

INTRODUCTION

TO THE NONCOMMISSIONED OFFICER:

This questionnaire is part of a field survey designed to identify tasks for military police training. Its specific purpose is to obtain from you, the Noncommissioned Officer, information on task criticality and frequency of performance. Feedback gained from this questionnaire will play a major part in redesigning the Noncommissioned Officer Advanced Education System. The ultimate goal is to design training so that it reflects what we have learned from you in the field. This goal is possible only with your full cooperation. Consider each task listed in this questionnaire carefully and give your best response. Your contribution is essential to a successful survey.

TO: USER OF QUESTIONNAIRE

GENERAL INSTRUCTIONS

1. Complete this survey questionnaire within the time specified by your unit project officer and return it to him/her upon completion.

2. Because instructions for completing each part of this survey questionnaire are different, read all instructions carefully.

3. Part II requires that you supply biographical information. This information will be used to correlate feedback received from the field. Print all answers in the spaces provided on the appropriate survey questionnaire page.

4. In the upper right corner of each page of Part III, Task Inventory, of this survey questionnaire is a BOOKLET NUMBER block. Immediately to the left of this block is the individual booklet number. Print the individual booklet number in the BOOKLET NUMBER block on each page of the Task Inventory as demonstrated in the example.

EXAMPLE:

(000345)

	BOOKLET NUMBER									
	0	1	2	■	4	5	6	7	8	9
	0	1	2	3	■	5	6	7	8	9
	0	1	2	3	4	■	6	7	8	9

5. Part III, Task Inventory, is divided into nine (9) separate sections (Sections I-IX). The content of these sections concerns tasks you may perform in your present duty assignment. You are asked to rate each task in accordance with three criteria - frequency of task performance, immediacy of task performance, and importance of task to mission success.

   Base all selections on your experience in your present duty assignment.

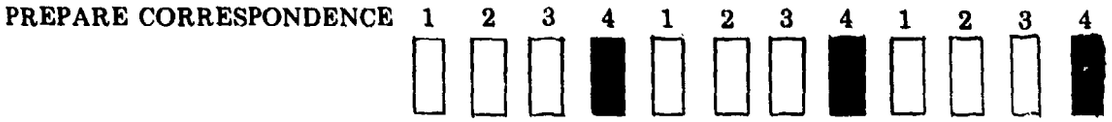
   a. Column A requires that you rate how often you perform each task on a scale from one to four. The criterion for this rating is the frequency of task performance. Those tasks performed most frequently will normally be rated four while those tasks not performed at all will be rated one.

b. Column B requires that you determine how soon you must be capable of performing each task after reporting to your present duty assignment. The criterion for this rating is the immediacy of task performance. Of the four possible responses, select the one most nearly describing your requirements. Select response number four for those tasks which you must be capable of performing immediately upon reporting for duty. Select response number one for those tasks which you never perform.

c. Column C requires that you describe, in your opinion, how important each task is to mission success. The criterion for this rating is the importance of the task to the accomplishment of the unit mission. Those tasks that, in your opinion, are most important to mission success will be rated four while those tasks that you consider least important will be rated one.

6. After selecting, enter your responses for each task, using either a pen or pencil, in the answer portion adjacent to the appropriate task statement as demonstrated in the example.

EXAMPLE: The task PREPARE CORRESPONDENCE, if rated as performed FREQUENTLY in Column A, identified as must be capable of performing IMMEDIATELY in Column B, and determined by you to be MOST IMPORTANT in Column C, would be entered in the answer portion, as shown below.



7. After each section of Part III, Task Inventory, is a Write-In Section. These write-in sections are provided in order that you may comment on each task inventory section, or list any task(s) you think should be included in the Task Inventory. These sections also allow you to comment on those tasks that you find are the most difficult for you to perform.

TO: PROJECT OFFICER

GENERAL INSTRUCTIONS FOR PROJECT OFFICER

1. General. The Military Police School is currently involved in redesigning basic military police training to produce military policemen better equipped to perform when they reach the unit. The emphasis is toward training replacements in tasks actually being performed in the field. The questionnaires in this packet are designed to identify those tasks.

   The care with which you, the project officer, administer the questionnaires will determine the accuracy of field feedback and, consequently, the success or failure of this project.

2. Survey Packet Contents.

   a. Questionnaire

   b. Supervisor Questionnaire

   c. Project Officer Instructions

   d. Answer Sheets for Questionnaire

   e. Pencils for use on answer sheets.

3. Responsibilities.

   a. Unit Commander. The unit commander is requested to appoint a project officer and to monitor administration of the survey.

   b. Project Officer. The project officer is responsible for the control and handling of questionnaires, for the administration of the questionnaires, and for returning completed and unused questionnaires to the Military Police School.

   c. Questionnaire Administrator. The project officer may appoint someone to administer the questionnaire, if necessary. Normally, however, it is recommended that the project officer administer the questionnaire.

4. About the Questionnaires.

   a. Questionnaire. This questionnaire is designed to identify tasks being performed by military policemen in the field and the frequency with which each task is performed.

   b. Supervisor Questionnaire. The supervisor questionnaire is programmed to provide feedback on task criticality, probability of deficient performance, and the frequency with which each task is performed.

5. Who Takes The Questionnaire. The project officer is responsible for selecting individuals to take the questionnaires (respondents) within their units. Those selected must meet the requirements listed below:

   a. The questionnaire respondent must:

      (1) Be in an M.P. duty assignment (actually performing M.P. duties)

      (2) Have been on the job at least 90 days

   b. The respondent to the Supervisor Questionnaire must:

      (1) Command or supervise M.P. personnel

      (2) Have been in a command or supervisory position in the unit for 90 days (Assign questionnaires proportionately among officers and NCO's)

6. Questionnaire Administration.

   a. Questionnaire. The questionnaire will be administered in a controlled environment. Persons participating in the survey will be allowed two hours to complete the questionnaire and will turn the questionnaire and answer sheets in to the questionnaire administrator prior to leaving the survey area. Individual questionnaires and their accompanying answer sheets will be kept together.

      See attached item for the procedure to be followed in administering the questionnaire.

   b. Supervisor Questionnaire. Supervisors selected as respondents for this questionnaire will be allowed to sign for the questionnaire and take it with them. They will complete the questionnaire and return it to the project officer within a time frame he/she specifies. This time frame must be compatible with the suspense date to the Military Police School.

7. Questionnaire Handling. Questionnaires and answer sheets become FOR OFFICIAL USE ONLY when completed. For ease of accounting, each questionnaire and its accompanying answer sheets are numbered. All questionnaires must be returned to the Military Police School whether they are used or not. Instructions for returning the questionnaires to the Military Police School are contained in the basic letter. If you have any problems or questions, contact (NOTE: Give name or names, address, and telephone number).

TO: PROJECT OFFICER ADMINISTERING QUESTIONNAIRE IN A CONTROLLED ENVIRONMENT

ADMINISTERING THE QUESTIONNAIRE

A-1. Preparation. A classroom or training room equipped with desks will provide the most ideal site for administering the questionnaire. Questionnaires, answer sheets, and two electrographic pencils should be issued to participants after everyone who is to take the questionnaire has arrived. This ensures that everyone starts together.

A-2. Instructions. The questionnaire administrator will present the following instructions.

a. "Is there anyone here who is not working in an M.P. duty position? Is there anyone here who has not been assigned to their present duties at least 90 days? If so, please leave at this time."

b. "Will everyone at this time please read the first page in the questionnaire which has been issued to you."

(Note to the administrator: It must be emphasized that your enthusiasm for this project or lack of it will be contagious. It is important that you demonstrate a positive attitude to the participants. Allow time for the first page to be read and underline the importance of the questionnaire with the following statement.)

"I would like to stress the importance of this questionnaire. The Military Police School wants to design training to fit the job in the field. You are the only people who can tell them what they need to know. Please think through each question and give your best answers."

c. "Turn to Part I, Biographical Information, and answer questions 1-13. When you have finished, lay your pencil on the desk so I will know when to proceed to the next step."

d. "Now read the instructions found in Part II."

(Note to the administrator: Allow reasonable time for everyone to finish before moving to the next step.)

"Are there any questions?"

e. "As you read in the instructions, there are nine answer sheets accompanying your questionnaire. Take the answer sheets and number them one through nine to correspond to the first nine sections in Part III of the questionnaire. If you do not have nine answer sheets, raise your hand—I have extra ones. Use a separate answer sheet for each section. Answer only the number of questions listed in each and move to the next section and answer sheet. It is not necessary to write your name, rank, the date, or course at the top of the answer sheet. Also, disregard the blocks marked score, grade, extra points, and social security number."

f. "Because of the size of this survey, these answer sheets will be read by machine. You must use the special pencils provided so that the machine can read the answers. When marking your answer, take care to fill the vertical rectangle outlining the letter as shown by the example on page 4 of the instructions. Also, please be sure not to make any stray marks on the answer sheets. Finally, do not fold the answer sheets."

g. "All answers must be based on your experience in this your present unit. Do not call on experience in previous units. This means that if you do not perform a particular task in your present unit, you must mark 'do not perform this task' on your answer sheet."

h. "You may begin answering Part III. Remember Section ten, the written section. When you finish answering all questions, insert your answer sheets into the questionnaire and turn them in to me. You may leave when you are finished. Are there any questions?"

A-3. Conclusion. After everyone has taken the questionnaire, ensure that all questionnaires and answer sheets are accounted for. Collect the pencils provided so that they may be returned to the Military Police School along with the questionnaires and answer sheets.

HOW IS A SURVEY SAMPLE SELECTED?

You are now ready to select organizations and individuals to provide you with the needed job data. The complexity of the MOS, the availability and quality of published sources of job information, and the number of people in the particular job will determine how much and what kinds of information you need to collect. This will strongly influence the make-up and size of your sample. If the complexity and amount of required data are great, the number of organizations and individuals interviewed will increase. As a general rule, your survey sample should be as large as possible. This is particularly true if you do not have personnel available with the responsibility and authority to assure that most of your questionnaires will be completed. You should make an attempt to obtain a sample that represents the distribution of individuals in the MOS according to command and skill level. Review of personnel records, either by personnel employees, members of your job analysis team, or your field representatives who will conduct the survey will be required to obtain data upon which to base choices for your survey.

- In selecting UNITS for sampling, you should select units that:
    1. have at least a small number of job holders and supervisors who do the particular job to be analyzed. Preferably, you should choose some units that have a relatively small number of job holders, and some that have large numbers.
    2. are geographically and environmentally representative.
- In selecting INDIVIDUALS within the units, you should select a group made up of individuals who:
    1. perform and supervise the job being analyzed.
    2. perform with average satisfactory proficiency.
    3. are representative in terms of length of time on the job.
    4. are representative in terms of training.

For certain types of information you will also want to choose at least a few job holders or supervisors who are acknowledged experts at the job.

HOW IS A QUESTIONNAIRE SURVEY CONDUCTED?

- **Trial Run (Validation of Instruments)**

Before sending out the total number of questionnaires you intend using, you may wish to send out a small number. This will permit you to check the initial results and possibly make some changes in your questionnaires or instructions. Then you will send out what you hope will be the total number of questionnaires required.

- **Group Administration**

The ideal way to administer questionnaires is group administration. Where the local responsible official and his/her assistants schedule the administration he/she should do the following:

— Make certain that only eligible individuals are seated in the administration area.

— Read the administrative instructions.

— Provide any necessary assistance in completing the questionnaires.

— Return the completed questionnaires to the school.

- **Individual Administration**

Often, particularly with individuals at remote stations, group administration is impractical. In these cases, it is sometimes effective to send the questionnaires to a responsible officer and request that he/she return them by a reasonable suspense date. Careful attention should be paid to the instructions for administration of self-administration. If your command has no authority to require that a suspense date be met, then you must either obtain the concurrence of a command with that authority, or be willing to accept a reduced percentage return.

- **Return of Questionnaires**

How much confidence can you have in the validity of your questionnaire if you get less than a 100 percent return? Less and less confidence can be expected with each reduction in the percentage returned. What can you do if you are not satisfied with the percentage of returns of the questionnaires? We suggest you try the following:

1) Send out more forms to different people and hope for better results.

2) Recontact some of the first sample and try to encourage them to return the questionnaires.

3) Visit a random sample of those who did not respond and compare their forced responses with the voluntary responses. Then you and your supervisors will have to decide how much chance you are willing to take that the data you have received presents a sufficiently accurate picture of the job as it really exists.

Chapter IV

ORGANIZING PANELS OF EXPERTS

WHAT IS A PANEL OF EXPERTS?

With this method a group of personnel, selected for their experience and knowledge of the job, is brought together to confer about the required job analysis data. Panels may be made up of one or more of the following types of members:

1) Subject Matter Experts (SMEs)

   These are personnel found at your school who are acknowledged experts in the tasks, duty positions or MOS you are analyzing. They may be found among instructors or ISD personnel who hold the MOS. SMEs may or may not have had recent field experience.

2) Job Incumbents

   This group includes those who are presently holding the jobs/performing the tasks you are interested in, or who have recently held the jobs. The more recent the better. More than three years away from the field would disqualify a potential panel member.

3) Job Supervisors

   This group includes those who are presently or have recently (within the past three years) supervised soldiers in the jobs/tasks you are interested in.

Job incumbents and job supervisors may be found on the post where your school is located or at other locations. Check the TOEs and TOAs to find out where personnel may be assigned. While personnel assigned to your post are most conveniently assembled, they may not be completely representative of job incumbents/supervisors serving in other locations. Also, they probably have been heavily burdened by school surveys, panels, etc., already due to their proximity to the school. Therefore, personnel from other locations may have to be used.

WHEN IS A PANEL USED?

Panels of experts are a good alternate data source when:

- CODAP is not available.
- time and funds are inadequate for conducting a field survey.
- the type of information required can be reliably provided by a small group.

WHEN ARE SUBJECT MATTER EXPERTS USED?

With this method, a group of highly experienced personnel is brought together to record and organize the required job analysis data. This method is particularly useful in collecting job data on new jobs or on managerial and supervisory jobs where many of the most critical behaviors are not directly observable. Since the members of a panel of SMEs are experts in the MOS being analyzed, their collective effort should be decisions about the requirements of the job. In general, their greatest effectiveness is in evaluating and making decisions about job data that have been collected from other sources by other means.

WHEN ARE RECENT JOB INCUMBENTS AND/OR SUPERVISORS USED?

With this method, a group of job incumbents, job supervisors, or a combination of these, is brought together to provide information about their jobs. The primary function of this type of panel is to provide information about their jobs, not to make decisions. Another name for this type of panel is Consensus Group.

HOW IS A PANEL ASSEMBLED?

The panel is a relatively inexpensive and easy approach to collecting data. Three to seven persons is the number recommended to make up the panel. Whenever possible, you want panel members to be representative of different locations and types of units in the field. While many experts may be available within your school it is critical that their views be balanced by those of persons serving presently or recently in the field. If all of the panel members come from schools, there may be a tendency for the outcome to reflect what exists in training rather than what actually exists on the job.